

2017 likely to be third warmest year in the historical record

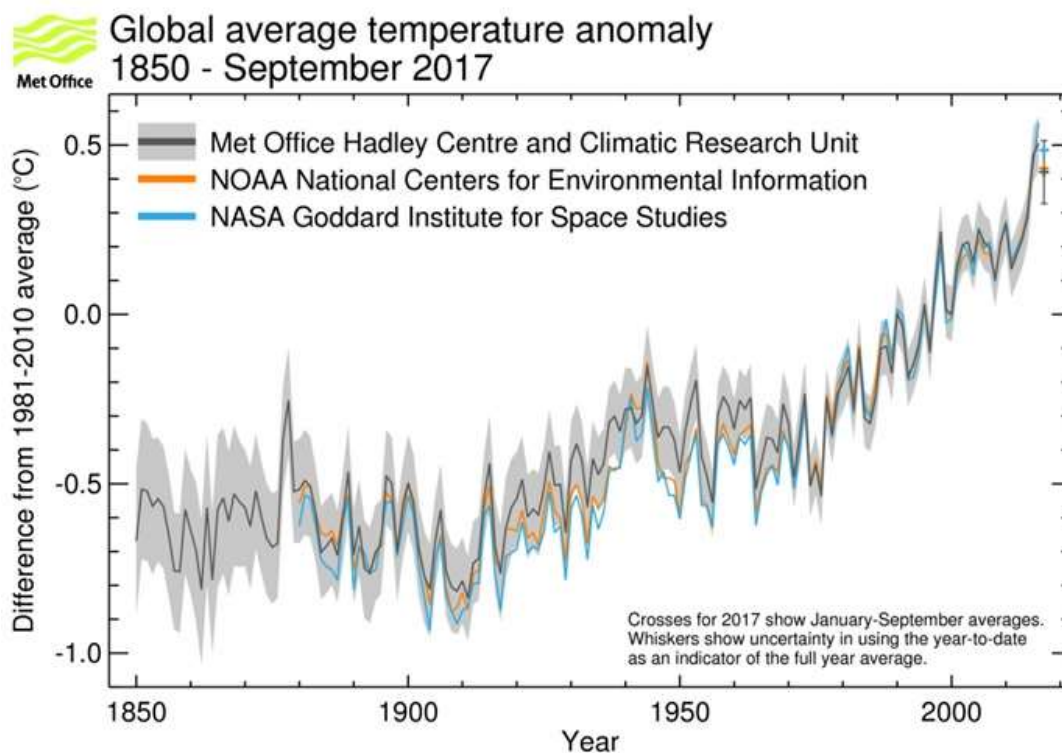
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2017 is likely to be one of the warmest years for global average surface temperature.

The Met Office's latest estimate for 2017 suggests the year will be the second or third warmest in a record stretching back to 1850.

Although 2017 isn't likely to break the record global mean surface temperatures set over the previous two years, climate scientists regard this year's figure as noteworthy because it will be the warmest year in the series which hasn't been influenced by an [El Niño](#) – the warm phase of the El Niño Southern Oscillation in the tropical Pacific.



Based on the [HadCRUT4](#) data set, global mean surface temperatures for January – September were $0.42^{\circ}\text{C} \pm 0.09^{\circ}\text{C}$ above the 1981–2010 long-term average (or $0.71^{\circ}\text{C} \pm 0.10^{\circ}\text{C}$ above the 1961–1990 long-term average). Although there are still three months to go, it is likely that 2017 will be the third consecutive year of exceptionally high average surface global temperatures, despite the emergence of cooler conditions in the Pacific.

The [World Meteorological Organization's](#) estimate – published today (Monday 6 November 2017) – reveals that 2017 is likely to be one of the three hottest years on record together with 2015 and 2016. The WMO bases its temperature assessment on datasets from several organisations, including the HadCRUT4 dataset compiled by the Met Office Hadley Centre and the University of East Anglia's Climatic Research Unit.

[Professor Stephen Belcher](#) is the Met Office's Chief Scientist. Commenting on the global temperatures for 2017, he said: "During an El Niño event, warmth is released from the tropical Pacific Ocean and this influences global temperatures, pushing them above the trend from man-made climate change. However, this year is noteworthy because, even without that extra shove from El Niño, we are seeing annual temperatures that are higher than anything in the record prior to 2015."

[Professor Tim Osborn](#) is the Director of the University of East Anglia's [Climatic Research Unit](#). He said: “ Data for 2017 so far indicate that 2017 will be around 1°C above pre-industrial levels, an increase almost entirely due to human activities – principally the release of carbon dioxide into the atmosphere by burning coal, oil and gas.”

In December 2016, the Met Office [prediction](#) for the global mean surface temperature – using the composite World Meteorological Organization figure – was between 0.32 °C and 0.56 °C above the 1981–2010 long-term average (or between 0.63 °C and 0.87 °C above the 1961–1990 long-term average).

The Met Office's [Professor Adam Scaife](#) added: “The global mean surface temperature this year looks likely to agree with the prediction we made at the end of last year that 2017 would be very warm but was unlikely to exceed the record temperature of 2015 and 2016.”

The table below provides the temperature (anomaly) in the HadCRUT4 data set for each year between 2000 and 2017, relative to the long-term average of the periods 1981–2010 and 1961–1990.

Year	Global mean surface temperature compared with 1981-2010 baseline		Global mean surface temperature compared with 1961-1990 baseline	
	Anomaly (°C relative to 1981-2010 long-term average)	95% confidence limit (°C relative to 1981-2010 long-term average)	Anomaly (°C relative to 1961-1990 long-term average)	95% confidence limit (°C relative to 1961-1990 long-term average)
2017 (provisional)	0.42 °C	0.33 °C to 0.51 °C	0.71 °C	0.61 °C to 0.81 °C
2016	0.50 °C	0.42 °C to 0.58 °C	0.80 °C	0.71 °C to 0.89 °C
2015	0.47 °C	0.39 °C to 0.55 °C	0.76 °C	0.68 °C to 0.85 °C
2014	0.29 °C	0.21 °C to 0.37 °C	0.58 °C	0.49 °C to 0.67 °C
2013	0.22 °C	0.14 °C to 0.30 °C	0.51 °C	0.42 °C to 0.61 °C
2012	0.18 °C	0.10 °C to 0.26 °C	0.47 °C	0.38 °C to 0.56 °C
2011	0.13 °C	0.05 °C to 0.21 °C	0.43 °C	0.34 °C to 0.52 °C
2010	0.27 °C	0.19 °C to 0.35 °C	0.56 °C	0.47 °C to 0.65 °C
2009	0.21 °C	0.13 °C to 0.29 °C	0.51 °C	0.42 °C to 0.60 °C
2008	0.10 °C	0.02 °C to 0.18 °C	0.40 °C	0.31 °C to 0.48 °C
2007	0.20 °C	0.12 °C to 0.28 °C	0.49 °C	0.40 °C to 0.58 °C

Year	Global mean surface temperature compared with 1981-2010 baseline		Global mean surface temperature compared with 1961-1990 baseline	
2006	0.21 °C	0.13 °C to 0.29 °C	0.51 °C	0.42 °C to 0.60 °C
2005	0.25 °C	0.17 °C to 0.34 °C	0.55 °C	0.45 °C to 0.64 °C
2004	0.15 °C	0.07 °C to 0.24 °C	0.45 °C	0.36 °C to 0.54 °C
2003	0.21 °C	0.13 °C to 0.30 °C	0.51 °C	0.42 °C to 0.60 °C
2002	0.20 °C	0.12 °C to 0.29 °C	0.50 °C	0.41 °C to 0.59 °C
2001	0.15 °C	0.07 °C to 0.23 °C	0.44 °C	0.35 °C to 0.53 °C
2000	0.00 °C	-0.08 °C to 0.08 °C	0.29 °C	0.21 °C to 0.39 °C
1999	0.01 °C	-0.07 °C to 0.09 °C	0.31 °C	0.22 °C to 0.40 °C
1998	0.25 °C	0.17 °C to 0.33 °C	0.54 °C	0.45 °C to 0.63 °C
1997	0.10 °C	0.02 °C to 0.18 °C	0.39 °C	0.30 °C to 0.48 °C
1996	-0.11 °C	-0.20 °C to -0.03 °C	0.18 °C	0.09 °C to 0.27 °C
1995	0.03 °C	-0.05 °C to 0.11 °C	0.33 °C	0.24 °C to 0.41 °C
1994	-0.08 °C	-0.17 °C to 0.00 °C	0.21 °C	0.12 °C to 0.30 °C
1993	-0.14 °C	-0.23 °C to -0.06 °C	0.15 °C	0.06 °C to 0.24 °C

Year	Global mean surface temperature compared with 1981-2010 baseline		Global mean surface temperature compared with 1961-1990 baseline	
1992	-0.19 °C	-0.27 °C to -0.11 °C	0.11 °C	0.02 °C to 0.19 °C
1991	-0.04 °C	-0.12 °C to 0.04 °C	0.25 °C	0.17 °C to 0.34 °C
1990	0.00 °C	-0.08 °C to 0.09 °C	0.30 °C	0.21 °C to 0.38 °C